

I. PROJECT IDENTIFICATION

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| 1. PROJECT TITLE Communications Satellites and Development Applications | | APPENDIX ATTACHED <input type="checkbox"/> YES <input type="checkbox"/> NO |
| 3. RECIPIENT (SEE 1025.1) | | 2. PROJECT NO. (M.O. 1095.2) 931-11-690-092 |
| <input type="checkbox"/> COUNTRY | <input checked="" type="checkbox"/> INTERNATIONAL TA/EHR | 5. SUBMISSION DATE <input checked="" type="checkbox"/> ORIGINAL Dec. 19, 1975 <input type="checkbox"/> REV. NO. _____ DATE _____ |
| 4. LIFE OF PROJECT BEGINS FY 76 ENDS FY 77 | | CONTR. PASA NO. _____ |

II. FUNDING (\$000) AND MAN MONTHS (MM) REQUIREMENTS

| 1. FUNDING BY FISCAL YEAR | 2. FISCAL YEAR | 3. PERSONNEL | | 4. PARTICIPANTS | | 5. COMMODITIES \$ | 6. OTHER COSTS \$ | 7. PASA CONTR. | | 8. LOCAL EXCHANGE CURRENCY RATE: \$ US _____ (U.S. OWNED) | | |
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COMMUNICATIONS SATELLITES AND DEVELOPMENT APPLICATIONS

I. Summary and Recommendations

A. Recommendations

It is recommended that \$110,000 of FY 76 grant funds be allocated to carry out this project.

B. Description of the Project

Communications satellite systems which can broadcast television (or radio) signals directly to community receivers (or by re-transmission to receivers in homes) have become a reality. The first demonstrations of this capability occurred in 1974 and 1975, in the United States, covering a variety of health, educational and telecommunications applications. In August, 1975, India started its demonstration of satellite-TV aimed at agricultural and other development objectives in several thousand of its villages. Early in 1976, Canada and the United States will begin a second-generation series of social development experiments on the "CTS" (Canadian Technology Satellite) and in mid-1976 the ATS-6 satellite (Applications Technology Satellite-6) will return from India to the Western Hemisphere for more possible demonstrations. Meanwhile, operational, nation-wide, communications satellite applications are being firmly planned by Brazil, Indonesia, Iran and others. One of the attractions of this technology is the ability of a satellite to transmit to (and receive from) the most remote, rural areas at about the same cost as to the more developed urban centers.

The principal components of the project will be:

(1) The preparation of an information paper on the future plans of LDCs, and some others, for the use of satellites. This will include the collection of data relating to Brazil, Indonesia, Iran, and Zaire, as well as Japan. Indonesia and Japan are to be viewed especially in the light of plans relating not only to in-country use, but with special reference to those satellites possibly providing service to Malaysia, the Philippines, Thailand and other parts of South-East Asia.

The paper will also take note of plans for satellites in Africa, South of the Sahara; in the Arab States Region, in Australia and Mexico. (Australia's plans could well impact, as could those of

Japan, or Pacific Island countries.) Attention will also be paid to the voice-only satellite program, called PEACESAT, now operating in the Pacific area. It will also consider the Andean States, where the subject of a regional satellite has long been under discussion.

All of these future plans will be examined during this fiscal year, but projecting the plans across a five year time-span.

(2) An information paper will be prepared on India's SITE (Satellite Instruction Television Experiment) program. SITE is dealt with separately from the items in (1) (above) because, outside of the recent experiments in Alaska (which, in many ways, resembles an LDC) it is the only project utilizing the technology under scrutiny which has actually taken place in an LDC context.

(3) A paper to be written on the possible applications of satellite technology for low-cost health services delivery systems. Such systems formed a major component in the Alaskan experiments utilizing the ATS-6. This study will also encompass the activities undertaken by the Veterans Administration hospitals in the first round of ATS-6 experiments, as well as those being planned for the use of the ATS-6 upon its return to the United States.

(4) A paper will be prepared on the planning for and (to the extent possible) the use of, the Canadian Technology Satellite. This joint Canada/NASA project is of special interest because the technology differs from the ATS-6 in terms of both frequency used and on-board transmitter power. The difference permits smaller antennas at the ground sites and will also permit the first experiment ever conducted in transmitting directly to home receivers. Of further interest to AID is the fact that one experiment will test the viability of a portable earth terminal designed for emergency and disaster relief communications uses.

(5) A paper will be commissioned, synthesizing the formal evaluations now underway of the recent ATS-6 health, education and telecommunications experiments in Alaska, Appalachia and the Rocky Mountain areas. (While TA/EHR has recently published a "Case Study" of these experiments, that study pointedly made no effort to evaluate them. It was written at too early a stage in their progress to attempt to do so fruitfully.)

(6) Of particular interest to AID's LDC constituency is information relating to the costs of satellite technology. The "Case Study" (5) (above) could not deal with the costs issue; it is only now, that the one-year experimental period is over, that figures are emerging in any meaningful quantity. The paper to be prepared will utilize information collected by the formal evaluators and data released in the final reports of the ATS-6 project's components. This paper will also attempt, while recognizing the difficulties of translating costs from one economic system to another, to take some note of the costs incurred by India in mounting, managing and maintaining SITE.

(7) Upon the return of the ATS-6 to the United States, a series of experiments has been planned. Some of these, such as in Alaska, are quasi-operational continuations of what had been done during the experimental phase of the work in Alaska, Appalachia and the Rocky Mountains. One function, within the overall project here described, will be continually to monitor these activities so that a central focal point and body of information will be available to provide timely, accurate and relevant data of value in response to LDC requests to TA/EHR. (In one sense, this activity represents a continuing up-date of the recently published "Case Study" and the "check-list" information it provided to LDC planners.)

At the near-end of the experimental year, many of the organizations working with the ATS-6, augmented by others, formed the Public Service Satellite Consortium. The PSSC is a non-profit organization concerned with the utilization of satellite technology for the benefit of the health and educational communities. Its plans and activities will also be monitored for the benefit of the LDCs.

(8) A brief "brainstorming" session (perhaps two days in length and limited in attendance) will be held in Washington D.C. called "The Desired Art," it will bring together people from various disciplines and interests who have thought long and hard about the potential of satellite technology, but who have not necessarily been operationally involved with it. The value of the perceptions of those who have been "above the fray" is seen as evident. Each of the participants will be an expert in a field such as: education, engineering, international organizations, communications law, journalism, broadcasting, economics, strategies of innovation, communications policy planning, political science, sociology and anthropology. In addition, some participants will be selected by virtue of their in-country knowledge or experiences. Each might be asked to prepare an input paper, reflecting on what could be done with direct broadcast satellite technology (direct, that is, to home receivers) harnessed to serve the goals of development. (Direct-to-home is specified since that is a technology which, assuming it to be affordable, and depending on Canada's experiments in 1976 and Japan's in 1977, will probably be operational within five to ten years.) The output of the sessions would be a monograph, edited for TA/EHR's specific audience concerned with satellites for education and development.

(9) A continuing activity of the overall project will be to monitor the UN, the ITU and UNESCO (which has long shown a major interest in the use of satellites) and related meetings, conferences and seminars concerned with the utilization of satellites for education and for such development activities as family planning.

C. Interrelationship with other AID Programs

This project is tied closely to activities both in the past and planned for the near future. Since 1966, AID has been involved

in studies, task forces and conferences relevant to the use of satellites for education. (A detailed memorandum is available; but suffice it to say that involvement has ranged through the White House Task Force on Communication Satellites and Education (1966), the Interagency Task Force on Educational Television and the LDCs (1967), the Rostow Task Force on Communications Policy (1968), representation on a team designing an ETV training center in India in support of the satellite experiment (1969), the HFAC Hearings on satellites and development (1969-1970 - one result of which was Section 220 of the FAA, Programs for Peaceful Communications), and, from 1971 onward, a host of studies about satellites. AID was represented (1973) on the U.S. Delegation to the UN Working Group on Direct Broadcast Satellites. AID brought together (1974, Denver/Heber City, Utah) for the first time managers of the key planned satellite experiments and planners of major LDC operational systems. In 1974, AID participated in Indonesia, in a week-long symposium to kick off planning for Indonesia's satellite. AID contributed to sending a delegate to UNESCO's Conference on Satellites South of the Sahara and in the Arab States Region; funded a staff consultant for a UN meeting in Geneva on direct broadcast satellites; participated actively in the State Department (CU-ID) sponsored Airlie House conferences on DBS. Most recently, AID funded the aforementioned "Case Study" of which nearly a thousand copies have been distributed to LDC planners and educators and others.)

For the immediate future, we are involved with an FY 77 technical assistance project in Indonesia which is satellite-related; with a study (by Dr. Ithiel de Sola Pool of MIT) on data transmission by satellites with a special focus on the agricultural research networks. TA/EHR is planning an FY 76 project on a system of two-way audio support for health and/or agricultural paraprofessionals which is patterned after an Alaskan Indian Health Service satellite experiment. We are also looking to a review of possibilities for experiments on CTS and ATS-6.

D. Summary Findings

The project looks, across its nine discrete components, to enabling AID to serve its LDC constituents, in response both to their questions and their needs, with sophisticated information about the potential of satellite technology. No attempt can be made here to predict the outcome of the information-gathering and analyses to be undertaken; the state-of-the-art is advancing exponentially and with great fluidity. There are political and regulatory problems facing us in the near future. Costs for the application of the technology are not well-defined. New uses are being experimented with, using new and different technological configurations. The potential of "direct-to-home" has vast educational implications and faces considerable political constraints. International agencies are playing a major role

in an attempt to focus LDC interest in this area. The prime objective of this project is to enable us to maintain and improve the services requested of us in the areas of education and development. AID's examination of the satellite option is undertaken because of LDC activities and interests which are proliferating. These studies, in no way will promote a technology, but will illuminate it for AID and its constituents, who have been the targets for efforts to promote the technology as a universal specific for a wide range of problems.

E. Project Issues

These have been largely covered within the descriptions (B. 1-9 above) of the component of the overall project and in (D. Summary Findings.) It might only be added that the reference above to an exponential rate of change refers not only to the hardware and the technology, but to political and regulatory issues which are in process of surfacing in the international arena. Some of these relate to the technology, such as those issues concerned with frequency allocations and the availability of suitable and desirable "parking spaces" for geosynchronous satellites, especially for those countries not yet able to mount a satellite system but feel they may want one in the future. Of greater moment, perhaps, are the issues which relate to "the free flow of information" and to the rights of any one country to transmit programs unwanted by another. UNESCO is soon to consider, as a major issue, "The Right to Communicate." Given the inter-relationship between education and communications, given the inter-face between communications and technology and the potential educational technology using communications media holds for LDCs, the project overall is seen as of great value to the fulfillment of AID's mandate.

II. Project Background and Detailed Description

A. Background

Much of the rationale behind our concern for the development of satellite technology and its applications for and in LDCs has already been referenced. Worth re-stating and stressing is that the emerging technology of higher-powered satellites and lower-cost receiving stations increases the potential of satellites for integrating rural areas into national communications networks. Such satellite systems might be useful for a number of development purposes: for regional development through reliable rural telephone and telegraph services; for data exchange in medicine, agriculture and other fields; for community television broadcasting in support of activities in health, agriculture, education, family planning, disaster relief, etc., and for instructional television and radio, to improve educational

outreach and effectiveness. It seems probable that such **satellites** will come into use for tele**communications** in a number of countries, so the possibility for these other development applications may well exist.

Whether satellite **communications** has cost-effectiveness advantages over other means of achieving particular development goals, however, requires careful scrutiny. (it is for this reason that one of the proposed components of the project is a study of costs.) Others of the components will lead to reinforcing the point that the cost of the satellite is only a moderate percentage of total costs, with receiving sets, power sources, TV production and administration costing substantially more.

Still others of the studies, and the constant monitoring activities proposed, will deal with another set of major problems, the constraints to be found in developing LDC systems. (Many such have already emerged as a result of the work recently done; others will undoubtedly surface as this overall project proceeds, and the applicability of similar problems can be demonstrated better to serve the LDC planners.)

It is feasibility questions (in the LDC context) that loom largest. (But, it is the very same questions that most plagued - and likely will plague - the programs and experiments at which this project will be taking an in-depth look.) The very broad geographic coverage of satellite systems presents particular problems: in management of large-scale activity; in devising programs or services to serve the diverse populations found over large regions; and in using centralized services at a time when local community and regional action seems central to development. The ability of major institutions to cooperate on joint activities within a country is also critical to the success of satellite-related projects. In addition, (and many of the components of this project will examine many of these issues) there are limitations common to other uses of communications technology: providing quality educational or other services in LDCs, with their limited skilled resources; maintaining delicate and costly technologies in rural environments (and in many hostile urban ones, as well); and integrating **communications** into other development programs, for maximum effect.

Some further explication of some of the key points and nuances in the description of the overall project's components (1-9) is seen as desirable. Brazil's inclusion in (1) is not because it is viewed as an LDC, but largely because of whatever bellwether effect it may have on other Latin American countries as its satellite plans and programs mature. While its technological and fiscal capabilities are considerable, it does face geographical and topographical problems, as well as problems of ethnic diversity, the observation of its solution to which may well prove beneficial to others. India, too, is significantly

different from others contemplating the satellite option; its technological infra-structure and its history of using technology is quite different from, say, Africa, South of the Sahara. But, it is the first LDC to have used satellites for these purposes and, as well, its credibility is likely ranked high by other LDCs. Also, if Africa is seriously to contemplate the satellite option, its attempt to grapple with the problems created by separate and distinct languages spoken by substantial numbers of LDC citizens in the area South of the Sahara may benefit from whatever India's ultimate solution to its linguistic diversity may be.

Consideration of PEACESAT (in 1) is deemed of value because it serves a wide variety of cultures and ethnic groups - and does so by radio, not television. Given the comparative costs of both radio's hardware and its software production to those of television, PEACESAT may emerge, as the result of broader dissemination about it to LDCs, as a model to be emulated. The tendency, among LDCs, seems to be to think "television;" some exposure to the greatly lower costs of radio, and the effectiveness of PEACESAT, may be beneficial in this regard.

The five year time span was selected both in the light of the need to make reasonable predictions about the state-of-the-art, and several other facts. One is that the next five years should prove out, via the Canadian and Japanese experiments, the viability of the direct-to-home satellite broadcast technology which will be tested by Canada's CTS next year, by Japan's satellite a year or so later. These satellites will attempt to transmit high-quality signals to antennas no larger than three feet in diameter; to put this in context, the ATS-6 antennas were ten feet. Study (4) will shed considerable light on this whole area. Finally, (and this relates to Study (8) and Study (9) as well,) the two World Administrative Radio Conferences which will deal with the allocation of frequencies for operating satellite systems will occur in 1977 and 1979.

The rationale for Study (2) (of India's SITE) has already been discussed in depth. Study (3) (of low-cost health services delivery systems,) addresses itself to a desperate need of the LDCs and has the further advantage of having a body of resource and research material, generated during the Alaskan ATS-6 experiments (and prior to them, using voice-only satellites for much the same purpose) available to it. And, as previously mentioned, Alaskan conditions are similar, in many ways, to those to be found in many developing countries, including the need to use para-professionals for health care.

Study (4) (of the CTS,) offers several items of potential benefit. Information that may be generated about the use of a portable satellite terminal for disaster relief ties in to long-term AID concerns. The experiments to be conducted in the Canadian far north should offer data about both isolated, rural communities, ethnically different from the remainder of the country, and about the behavior of equipment in a hostile environment, further complicated by the lack of a technological infrastructure for maintenance and repairs. The portion of Study (7) which deals with ongoing Alaskan experiments will aid this effort. And, it is already known, on the basis of preliminary findings, that

much of value will be found in the formal evaluations which are to be synthesized for AID's specific audience of LDC planners and educators as an output of component (5).

The value of collecting information, now much scattered, on costs (Study (6)) seems self-evident. Of especial value, and the study will be so directed, will be the effort to factor in software and personnel costs, items which developed during the course of the experimental year and were not generally part of the pre-experiment budget projections.

Component (8), the "Brainstorming Session" seems to offer a somewhat unique opportunity. Because of the late date at which the health, education and telecommunications experiments were added to the ATS-6 satellite, those concerned with the operation of the project were forced, almost immediately, into an operating mode. While the satellite literature offers some considerations as to what might be done via satellites for LDC education and development, little of it seems to be as the result of the kind of face-to-face, inter-disciplinary, interaction here proposed. And, of course, such interaction will benefit greatly from what we know to have happened during the course of the ATS-6 and SITE experiments, during the planning of CTS. Further, it is only in the past year or so that we have (largely because of the delicate political problems it posed,) begun even to admit that the direct-to-home satellite broadcast technology is a near-reality. The timing for such a session seems propitious.

Study (9), the continual monitoring of various international bodies and fora, of meetings and seminars, has been discussed at ample length. Suffice it to add that several major such meetings are known to be on the calendar of upcoming events. The final reports produced by these often tend to conflict with the actual temper and spirit of what happened; this is known to have been the case at one meeting in Addis Ababa about two years ago; it seems, judging on the basis of a preliminary draft report, to be happening to the results of a recent satellite meeting in Mexico City, one to which AID sent an observer. Clearly, some objective monitoring of similar meetings is a necessity if perspective is to be maintained.

B. Detailed Description

The content of each of the components of the overall project has been covered. The section dealing with implementation will delineate the time lines, administrative and manpower requirements, and costs. It should be mentioned here that the \$110,000 of FY 76 grant funds will be required in FY 76. Some of the project's findings, though, may lead to the identification of needs, not now known, which may become significant for future program development.

III. Project Analyses

A. Technical Analysis Including Environmental Assessment

Believed not applicable to this project.

B. Financial Analysis and Plan

Please see Part 4., Implementation Plan, for budgets.

C. Social Analysis

The social values to LDCs have already been discussed to the extent, given the shortage of hard data about satellites, they can be. A major expectation of the project is that it will yield such needed information.

D. Economic Analysis

It should be noted, the central thrust of many of the components of the project is to develop information both to aid in making rational economic planning judgements and to develop a sounder body of economic data on the technology than any that now exists. It had earlier been said that there is a dearth of knowledge about the cost-effectiveness of satellites for education and development. (This is not surprising; experience with it for these purposes has been limited.) Yet, the LDC need, and this is in part because of upcoming decisions on the international scene, is for knowledge about the relationship of satellite costs to costs of other ways of solving the same problems. This project will help to disseminate needed and accurate information in a timely manner. It will also help to demystify the technology and place it in a framework suitable for its use to make necessary economic and cost-effectiveness judgements.

IV. Implementation Planning

A. Administrative Arrangements

The projects, as will be developed in "B. Implementation Plan," will be carried out in a variety of ways. Consultants will be utilized. Papers will be commissioned from individuals. It may be necessary to contract out the logistics of the recommended "The Desired Art" (8) session; this will depend on internal TA/EHR work load at the time. As a result of previous experience with monitoring and studying satellite education and development and satellite policy issues, there are believed to be a sufficient number of highly-qualified resource persons to manage the tasks.

In those components of the project (1) (5) (6) (8) where the end product in the form of a monograph or other printed paper is

desired, TA/EHR is equipped to identify suitable recipients. (In the course of distributing the recently published "Case Study of the ATS-6..." close to a thousand individuals, world-wide, with a demonstrated professional interest in satellite developments, have been master card-filed.)

B. Implementation Plan

Certain general principals apply across the span of the nine project components; they will not be separately reiterated. They largely have to do with identifying the suitable consultant or researcher, establishing mutually agreeable time-lines, defining the exact scope of work, helping to secure whatever foreign materials may be required for analysis to complete the task, setting a suitable fee for the work to be done, determining distribution of the output, etc. (The output of several of the projects is seen at this point in time as desirable for publication; others will be better employed as internal documents.) In the case of those components requiring extensive travel, the most cost-effective routings will be determined; (as will be seen, the travel portion of the budget reflects only actual costs for single trips, since it is apparent that the savings to be affected by merging trips are a function of the chosen researcher or consultant's availability and schedule. These factors cannot, of course, be presented accurately at this time, nor can travel per diems be forecast precisely since final determinations have yet to be made as to which countries might most suitably be visited. This situation is also subject to changing considerations of a political nature, and to some probability that some of the countries under consideration may materially alter their satellite plans or configurations and in such a way as to render their programs more or less suitable for study and dissemination.) By virtue of the number of variables cited above, no Performance Network Tracking Chart will be provided. (All budget information will appear after 1-9.)

(1) Information paper on LDC future plans: This paper is intended for internal use and limited distribution. It will largely be drawn from existing literature, augmented by interviews, in person and via telephone and by mail questionnaire. Some travel may be necessary if data generation requires it, either to specific countries or to international organization data sources. The paper is seen as providing policy guidance to on-going deliberations about U.S. concerns with such issues as "free flow of information," "the right to communicate," and frequency allocations which will undoubtedly be a major issue, with strong political overtones, at the World Administrative Radio Conferences of 1977 and 1979. Estimated working time: 2 man/months. (*)

NOTE: Those items marked () are seen as desirably published in a loose-leaf format so that they can be easily and readily kept up-to-date as events unfold.

- (2) Information paper on SITE: This is seen as contributing to the general state of knowledge about the uses of satellite technology under LDC conditions. It is for AID internally and for selected re-transmission on a consultative basis. It is likely that it will be drawn almost entirely from published reports, augmented by any Embassy views of the project. Some cross-checking with independent observers is a necessity. An on-site visit would be desirable but may not be politically suitable or practical. (It should be noted that the Embassy has been able to view the programs, via a receiver installed at its location.) A component of this project may include participation in what has been scheduled (no firm date given) as a satellite managers' meeting to be held in India (This meeting may appear under UNESCO auspices; it may be under the auspices of the GOI.) Estimated working time: One and one-half man/months.
- (3) Low-cost health services delivery systems: This paper will possibly merit widespread distribution, depending on the findings. The data sources to be consulted will include the formal evaluations of the experiments conducted on the ATS-6 satellite in Alaska and in the Veterans Administration hospitals, augmented by some personal, telephone and mail interviews. It is also recommended that some non-satellite-based projects in this area, such as the linkage from Logan Airport to Massachusetts General Hospital, both in Boston, be examined. The Rockefeller Foundation supported study, carried out by the Alternate Media Center at New York University, on "Interactive Television for Delivery of Health Services," should be considered as a resource. Also of value will be the work of the Albany Medical College radio network. Estimated working time: One and one-half man/months.
- (4) The Canadian Technology Satellite: A paper on this subject is regarded as largely for internal use. The CTS will conduct a wide range of social experiments, as well as test the viability of a portable terminal for disaster relief applications. Other functions, and other reasons for studying this satellite, have already been advanced in detail. A research paper will deal with the planning for this effort, some of its birthing problems (especially including the fact that one major component has been closed down for both political and funding reasons,) some of its early results. Some travel to remote Canadian sites will be required of the author. An individual who has been associated with the project and has access to its documentation has been identified. The paper will, essentially, synthesize the results of much that has been written, augmented by interviews and some site visits. Estimated working time: 2 man/months. (*)
- (5) Synthesis of the formal evaluation of the ATS-6: the evaluations are generally large and extremely rich in content, as are the Final

Reports of the projects which are also to be considered. This paper is seen as providing the policy maker, both in the U.S. and the LDCs, an overview of findings. The end product is seen as a 50-60 page monograph describing the principal problems and issues, suitable for distribution to a list similar to that which received the ATS-6 "Case Study." It is essential, given the multilingual audience to receive this document, that it be written in laymen's terms and jargon-free. This documents may also be viewed as a companion piece to (6) (below). Estimated working time: 2 man/months.(*)

(6) Costs of satellite technology: A companion piece to (5) (above). It is likely that this paper can only draw on the formal evaluations and final reports of the ATS-6; while, as was suggested, an attempt will be made to factor in the Indian experience with SITE, it has already been noted that cost transfers from one economic system to another are extremely difficult. Because of this, the paper will probably not be as widely distributed as (5), but should be available to those readers of (5) who wish the data. For other-than-U. S.-users, it is strongly recommended that the paper clearly offer a caveat about the problems of making cost-comparisons without country-specific data. This paper will require the services of an economist to prepare, perhaps working alone (if possessed of a sufficient background in the satellite experiments) or working with a consultant with that background. Estimated working time: 2 man/months. (*)

(7) Continuation of the ATS-6 experiments: Knowledge about these will undoubtedly be needed and sought by LDC planners. The exact nature and locus of the experiments has not yet been announced by NASA, but several things are likely to happen. They will be more diffusely conducted than were the original set of ATS-6 experiments which had several distinct locales at which data was being collected: NASA will, of course, be a data point, but the premise here is that AID's constituency requires more interpretive data on educational and developmental matters and more translation of findings into LDCs terms than NASA would normally provide. The project is seen as a monitoring activity with considerable travel, by at least one consultant, to key projects across the range of experiments. Another area of concern, and one which falls under the rubric of "likely to happen," will be events in Alaska. Some of these will be considerably different (more radio, more telephony, improved medical services,) than were the original cycle of experiments on the ATS-6. And, it is during this year immediately ahead that the Public Service Satellite Consortium will be grappling with problems of satellite design and towards identifying a wide range of users and needs. Some monitoring of these activities may be conducted by TA/EHR staff.

No man/month estimate is projected here, but travel is covered under the budget for this project. (The m/m projection is absent since the details and locations of the specific experiments have not yet been released by NASA; indeed, some have yet to be determined. Some key areas and control points are known; travel to these has been budgeted.)(*.

(8) "The Desired Art: Implementation of this "brainstorming" session has largely been covered previously. One unknown factor, in terms of implementation, is the TA/EHR work-load at the time such a session can be convened. It is strongly recommended that it take place no later than July, 1976, so that it may have, through its monograph publication output, some impact upon the delegates to the World Administration Radio Conference of 1977 and upon the delegates to the United Nations General Assembly as they consider the report of the Committee on the Peaceful Uses of Outer Space, which shall have earlier met. Participants for this meeting can be readily identified. Some attempt to offset costs is recommended by seeking to have the session held at a Conference Center, such as that of the Johnson Foundation at Wingspread, in Racine, Wisconsin. (The Johnson Foundation has shown a strong interest in satellites for education and development.) The budget, though, reflects an estimate sans benefit of any possible offset. Professional editing for the output paper, which will be based on input papers and the transcripts of the sessions, will likely be needed. Some logistic help to set up the meeting will be acquired from outside AID. The design of the meeting and the identification of participants can likely be done inside, with some consultant help. Including AID and other U.S. government observers and participants, the meeting is seen as being held to approximately 25 persons.

(9) Monitoring the UN and other agencies: This is seen as a single (or perhaps two, at the most) person function throughout FY 1976. A series of papers of different events will be purchased. Depending on the UNESCO and other agency conference and meetings schedule, some travel may be necessary. UNESCO is planning a seminar on Satellites for the Arab States region and for Africa, South of the Sahara, to be held at the headquarters of the Organization of African Unity in Addis Ababa, sometime in FY 1976. AID was represented at the last such, held in the same locale, about two years ago.) The papers to be produced are seen as largely for internal use in AID and elsewhere in U.S. Government.

BUDGET

NOTE: Please see the reference made to travel cost computations in "3. Implementation Plan." (Above.) Various items which are unbudgetable in precise terms at this point will appear in a contingency allowance, items such as per diems which reflect available consultant time, length of scheduled (but not detailed) conferences and seminars, and the like.

The size of published papers - and the size of printing runs for such papers - cannot, in many instances, be estimated until the findings are in, and the need for distribution assessed, based on those findings. Publishing costs, therefore, are also viewed as contingency items.

Consultant fees are based on an average of \$120.00 per day; some savings may be achieved by purchasing a paper at a flat fee.*Any overages will be drawn from contingency. Any returns (such as returns which may result from merging trips and thus saving on travel costs,) will be returned to contingency.

An attempt will be made, throughout, to reduce communications costs (especially overseas) by utilizing the FTS and other official channels.

The rapid changes in country plans for the use of satellites, the UN and ITU situations the changes in the technologies themselves, are such that this fluid approach to the budget seems the most prudent course to follow.

*It is assumed that those from whom papers are purchased on a flat fee basis may be reimbursed for travel expenses but will not receive per diem allowances.

BUDGET SUMMARY TABLE

| | | |
|---|---------------------|---------------------|
| <u>Travel*</u> | \$ 20,000.00 | |
| <u>Travel Per Diems</u> 200 per diem days at Average \$30.00 p/d | <u>6,000.00</u> | <u>\$ 26,000.00</u> |
| <u>Component (1)</u> 2 m/m @ \$120.00 p/d | 7,200.00 | |
| <u>Component (2)</u> 1 and 1/2 m/m @ \$120.00 p/d | 5,400.00 | |
| <u>Component (3)</u> 1 and 1/2 m/m @ \$120.00 p/d | 5,400.00 | |
| <u>Component (4)</u> 2 m/m @ \$120.00 p/d | 7,200.00 | |
| <u>Component (5)</u> 2 m/m @ \$120.00 p/d | 7,200.00 | |
| <u>Component (6)</u> 2 m/m @ \$120.00 p/d | 7,200.00 | |
| <u>Component (7)**</u> | | |
| <u>Component (8)***</u> | 29,900.00 | |
| <u>Component (9)</u> Two research papers, @ \$2,500.00 ea. | <u>5,000.00</u> | <u>\$ 74,500.00</u> |
| <u>Publication and Duplicating</u> | <u>3,500.00</u> | <u>3,500.00</u> |
| <u>Telephone & Communications</u> | <u>1,000.00</u> | <u>1,000.00</u> |
| <u>Contingency Fund</u> | <u>5,000.00</u> | <u>5,000.00</u> |
| | <u>GRAND TOTAL:</u> | <u>\$110,000.00</u> |

*See Page 28 for details. **Use of contract consultant planned. ***See Page 29 for details.

TRAVEL SCHEDULE COSTS

Note: Some figures have been rounded because exact costs including tax and security were not available at time of inquiry. Also, please see explanatory note on Page 26 regarding possibility of savings through trip mergers and combined rates. Further, not all departures will be from NY. Prices as of 1 December, 1975.

| | | | |
|-----|--|---------|--------------------|
| 1. | NY/Ottawa/NY | 2 trips | \$ 216.00 |
| 2. | Ottawa/Montreal | 2 trips | 50.00 |
| 3. | NY/Gander, Newfoundland/NY) NY/St. John, Newfoundland/NY)* | 1 trip | 227.34 |
| 4. | NY/Fairbanks/Anchorage/Juneau/NY | 1 trip | 667.18 |
| 5. | NY/Sao Paulo, Brazil/NY | 1 trip | 913.00 |
| 6. | NY/Denver/NY | 1 trip | 266.73 |
| 7. | NY/San Diego/NY | 1 trip | 376.73 |
| 8. | NY/Paris/Geneva/Bonn/NY | 1 trip | 671.00 |
| 9. | NY/Hawaii/NY | 1 trip | 579.00 |
| 10. | NY/Wellington, N.Z./NY | 1 trip | 1,801.84 |
| 11. | NY/Phillipines/NY | 1 trip | 1,479.00 |
| 12. | NY/India/NY | 1 trip | 1,748.00 |
| 13. | NY/Cairo/NY | 1 trip | 1,134.00 |
| 14. | NY/Addis Ababa/NY | 1 trip | 1,487.00 |
| 15. | NY/Djakarta/NY | 1 trip | 1,850.00 |
| 16. | NY/Tehran/NY | 1 trip | 1,400.00 |
| 17. | NY/Tokyo/NY | 1 trip | 1,321.00 |
| 18. | NY/Wash., D.C./NY | 12 R/Ts | 824.76 |
| 19. | NY/Boston/NY | 3 R/Ts | 194.19 |
| 20. | NY/Albany/NY | 1 trip | 56.73 |
| 21. | Alaska, air charters | | 750.00 |
| 22. | Local Canada & air charters | | 750.00 |
| 23. | Misc. local (cabs, car rentals) | | 1,236.40 |
| | <u>TOTAL:</u> | | <u>\$20,000.00</u> |

KEY TO TRAVEL BY SUBJECT AND COMPONENT

| | | |
|----|-----------------------------|--------------------|
| 1. | CTS | (4) |
| 2. | CTS | (4) |
| 3. | CTS (disaster relief) | (4), (7) |
| 4. | ATS-6 | (3), (5), (6), (7) |
| 5. | Brazil Satellite | (1), (6) |
| 6. | ATS-6 and PSSC | (3), (5), (6), (7) |
| 7. | PSSC (Consortium) | (5) |
| 8. | International Organizations | (1), (2), (6), (9) |
| 9. | PEACESAT, East-West Center | (1), (2), (6) |

KEY TO TRAVEL BY SUBJECT AND COMPONENT (cont'd.)

- | | |
|--|--------------------|
| 10. PEACESAT | (1), (6) |
| 11. Phillipine Satellite | (1) |
| 12. SITE & UNESCO meeting | (1), (2), (6) |
| 13. Arab States Region, UNESCO meeting | (1) |
| 14. Addis Ababa, OAU/HQ, " " | (1), (9) |
| 15. Indonesian Satellite | (1) |
| 16. Iranian Satellite | (1) |
| 17. Japanese Satellites* | (1), (4) |
| 18. Consultant travel relating to all | |
| 19. Medical delivery systems | (3) |
| 20. Medical delivery systems | (3) |
| 21. ATS-6 | (3), (5), (6), (7) |
| 22. CTS | (4), (7) |
| 23. Applies to all. | |

Note:

All travel, depending on schedules and timing of appropriate inputs, impacts upon (8).

*The timing may be suitable to combine this trip with attendance at the annual meeting of the International Broadcast Institute, scheduled for September, 1976 in Japan. These meetings bring together individuals concerned with the topics under study from all over the world.

DETAILED BUDGET, PROJECT (8)

| | |
|--|--------------------|
| <u>Ten commissioned input papers*</u> @ average \$750.00 each | \$ 7,500.00 |
| <u>Ten honoraria</u> @ average \$250.00 each | 2,500.00 |
| <u>Travel to Conference location</u> 20 participants @ average \$250.00 each** | 5,000.00 |
| <u>Accomodations</u> 25 participants at hotel or conference center, \$40.00 per night (one night only) | 1,000.00 |
| meals: five at average \$7.00 each | 875.00 |
| <u>Tape Recording</u> Two days sessions @ \$250.00 p/d | 500.00 |
| <u>Transcription of tapes</u> | 1,500.00 |
| <u>Editing of input papers and transcripts</u> | 3,000.00 |
| <u>Local travel (taxis, etc.)</u> Average \$25.00 per person | 625.00 |
| <u>Publication</u> 1,000 copies @ \$2.00 p/c | 2,000.00 |
| <u>Conference Coordinator</u> One and one-half m/m @ \$120.00 p/d | 5,400.00 |
| <u>TOTAL:</u> | <u>\$29,900.00</u> |